

Guide for Rapid Response Teams (RRTs) for Cholera Outbreak investigation & initial response

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The material in this compendium was mainly drawn from the Zimbabwe Integrated Disease Surveillance & Response Technical Guidelines (2009); the Zimbabwe Cholera control guidelines (2009), various WHO guidelines on control of diarrhoeal diseases including cholera and Checklist for Central Rapid Response Team for Disease Outbreak Investigation including Avian Influenza by Ministry of Health, India.

Foreword

Response to epidemic prone diseases, particularly diarrhoeal diseases like cholera is usually simple, however, if the response is not swift and appropriately carried out, the outbreaks can result in unnecessary illness and loss of life as was the case in the cholera outbreak of 2008-2009.

The Rapid Response Team, a formation put in place through the Integrated Disease Surveillance and Response (IDSR) system in the WHO African region, is intended to ensure that outbreak response is immediate, from investigation, verification/confirmation, and management of cases through to reporting.

The RRT is the proactive arm of the Epidemic Preparedness & Response (EPR) committee, and is expected to report back to it and to the national level immediately in order to ensure that outbreak response from district to national level is swift and will curtail further spread, illness and death.

This document is a guide for health rapid response staff for use in investigation and initial response to cholera.



Brigadier General (Dr) Gerald Gwinji
Permanent Secretary
Ministry of Health and Child Welfare

Glossary of Terms

Action/Alert Threshold

The maximum allowable prevalence of a disease that will flag immediate public health investigation (alert) followed by an appropriate response. The alert threshold are followed by action thresholds and are specific for different conditions or diseases.

Attack rate:

Cumulative incidence rate of a disease in a specified population over a given period of time.

Case fatality Rate: The proportion of individuals contracting a disease/condition who die of it within a certain (specified) period of time. Expressed as an absolute or relative number (%) of reported cases of that disease/condition within a given period.

Case definition: A case definition is a standard set of criteria for deciding whether an individual should be classified as having the health condition of interest. It includes clinical criteria (signs and symptoms with or without a laboratory test); restrictions by time, place and person depending on the nature of health condition of interest. Classification is done according to whether a case is confirmed (by appropriate lab test); probable (with typical clinical features and linked to a confirmed case and suspected, with some typical clinical features. Standard Case Definition (SCD) is a case definition that is agreed upon to be used to classify a case in one or more countries.

Communicable period: The time during which an infectious agent may be transferred directly or indirectly from an infected person to another person, from an infected animal to humans, or from an infected person to animals, including arthropods.

Contact: A person or animal that has been in such association with an infected person or animal or a contaminated environment as to have had an opportunity to acquire the infection.

Contamination: The presence of an infectious agent on a body surface, in clothes, bedding, toys, surgical instruments or dressings, or other articles or substances including water and food.

Incubation period: The time that elapses between infection and the appearance of symptoms of a disease

Isolation: represents separation, for the period of communicability, of infected persons from others in such places and under such conditions as to prevent or limit the direct or indirect transmission of the infectious agent from those infected to those who are susceptible to infection or who may spread the agent to others.

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Introduction:

Since 1998, Zimbabwe has been increasingly reporting public health emergencies, particularly annual cholera outbreaks. The Ministry of Health and Child Welfare (MOHCW) has put in place the Rapid Response Teams (RRTs) mechanism from national to district level to investigate and initiate response to public health emergencies. Given the background of increasing cholera and other communicable diseases outbreaks, there is need to define and train RRTs as well as provide clear references on how investigations should be carried out in order to ensure appropriate preventive and control measures.

Section 1

Outbreaks are defined as the occurrence of cases of an illness in excess of normal expectancy in a community in a specific time period. An outbreak is localized, that is, limited to a small geographical area, however, when it involves more than one geographical area it becomes an epidemic. Length of an outbreak may make it qualify as an epidemic. A pandemic is an epidemic affecting large numbers of people in a large region such as a continent or more than one WHO region of the world.

Some diseases require investigation because they:

- have the potential to cause epidemics
- have been identified for elimination/eradication and
- are of public health importance or
- are of unknown origin/aetiology

Rumours of cholera and other such highly infectious diseases should be investigated immediately because of the potential to spread fast and cause large outbreaks, or epidemics, resulting in the loss of life, diverting health workers from primary health care activities and resources from other areas of health. Cholera outbreaks can be prevented from spreading, if quickly investigated, optimally, within 24 hours of receiving an alert, action within 72 hours of alert and controlled within two weeks.

A Rapid Response Team (RRT) is composed of experts who take the lead in conducting the initial investigation of reported and suspected cases or outbreaks so as to confirm the nature of the event under investigation. It is also the responsibility of the RRT to initiate the preliminary control/containment measures needed to prevent further spread of the disease. The following are the terms of reference of the team.

- To conduct a preliminary epidemiological investigation aiming at identifying the cause, origin/source, extension and potential for spreading of the event or outbreak under investigation.
- To conduct a clinical examination of the patients affected by the event under investigation.

- To collect relevant samples from the suspected cases for laboratory confirmation. All information related to the samples should be recorded in appropriate laboratory sampling forms;
- To analyse or dispatch all collected samples and sampling forms to the relevant laboratories for laboratory confirmation as quickly as possible;
- To immediately notify the relevant authorities about the findings/results of the investigation and to recommend possible interventions;
- To carry out the preliminary containment and control measures as appropriate according to the findings in the field;
- To prepare a detailed report of the investigation findings;
- To support and coordinate follow-up containment and control measures according to the findings/results and the national intervention policies and guidelines;

Rapid Response Team Core team members:

1. Team Leader
2. Epidemiologist
3. Environmental Health Officer
4. Clinician (Medical Officer/Clinical Officer/Nurse)
5. Medical Laboratory Scientist/ Technician
6. Health Promotion Officer

Expanded team members:

- Infection Control Nurse/Community Nurse
 - Logisticians / Administrators
- (see specific roles in annex 2)

The RRT is expected to:

1. **Investigate and confirm suspected cases or outbreaks:** Ensure that the case, outbreak or event is confirmed by the laboratory. Gather evidence about what may have caused the outbreak or event and use it to select appropriate control and prevention strategies.
2. **Verify diagnosis/identify cases** using standard case definitions
3. Describe the outbreak in terms of time, place and person.
4. **Report:** suspected cases to the next level.
5. **Respond:** Quantify and mobilize resources and personnel to implement the appropriate public health response.
6. **Provide feedback.** Encourage future cooperation by communicating with levels and other stakeholders that reported outbreaks, cases and events about the investigation outcome and response efforts.

Section 2

1. Investigate and confirm suspected cases or outbreaks

Investigations are normally carried out because the surveillance system has detected an increase in cases; the cause of the increase needs to be identified or a problem needs to be prevented/controlled.

a. Preparation for field work

- Verify rumours and collect information about the event using whatever means is available (email, phone, radio)
- Make necessary arrangements (technical, logistics and administration)
- Put together an outbreak management kit
- Brief members of the RRT on the planned investigation, what is expected of them and any other important issues

b. Develop working case definition and make provisional diagnosis

- On arrival at the affected area, examine current or recovered cases or contacts of the dead as the case may be. Review clinical and lab records, looking for unusual clustering of cases. Use standard case definitions (as specified in the Integrated Disease Surveillance & Response technical guidelines).
 - Develop a working case definition based on data reviewed, clinical diagnosis, population affected, area and duration.
 - Some other factors to look out for include: changes in the surveillance system, population movement.
 - Work out epidemiological linkages of all cases if possible
 - Compare data of corresponding period for current and previous years
- Collect appropriate samples to confirm, use standard laboratory request forms, ensuring that both provincial and national reference labs get adequate samples for quality assurance purposes.
- Line list cases that fit the case definition, using the T1 for the first five cases and a separate line list after that. All cases must be captured in the line list including those in the T1. Record name, address, age, sex, symptoms, date of onset, date of admission, travel history, treatment, outcome in the standard format.

2. Management of cases

- Manage cases appropriately according to approved protocols, isolating cholera cases to prevent transmission of infection and observing proper infection control.
- Ensure that sufficient stocks of drugs and logistical supplies are available, and that there is a mechanism in place to report consumption and order new supplies.

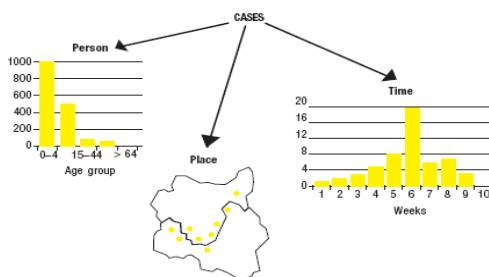
- Contact tracing should be carried out at community level, with the support of community health workers, using a community case definition as per IDSR guidelines.
- Conduct environmental investigations, collecting data on rainfall, water and food samples, drinking water supply, sanitation, irrigation projects or dams and environmental contamination as appropriate.

3. Laboratory investigations

- Ensure proper collection, labelling, transportation and storage of the correct samples.
- Monitoring of strains and changing patterns of antibiotic resistance.
- Use Rapid Diagnostic Test kits if available.
- Send samples or isolates to reference labs for verification, quality control, further characterization, sero-typing and sensitivity testing.
- Analyze lab data to determine trends
- Write reports of lab surveillance

4. Data analysis and reporting

- Plot the epi-curve to describe the outbreak in terms of time of onset and duration of the outbreak
- Make maps, including spot maps, to describe place of outbreak occurrence
- Analyse the data, indicating the characteristics of affected persons by age, sex, religion, or other significant ones.
- Determine the population at risk
- Analyse household survey data and calculate population based attack rates by age and sex group
- Formulate a hypothesis based on characteristics of affected population, cause of disease, mode of transmission, incubation period and other factors.
- Brief the district, provincial and national health authorities.
Request for daily feedback as per national IDSR guidelines.
- Write a report with findings, recommendations (immediate, medium and long term) focusing on preparedness and response. Share lessons learnt at lower and higher levels.

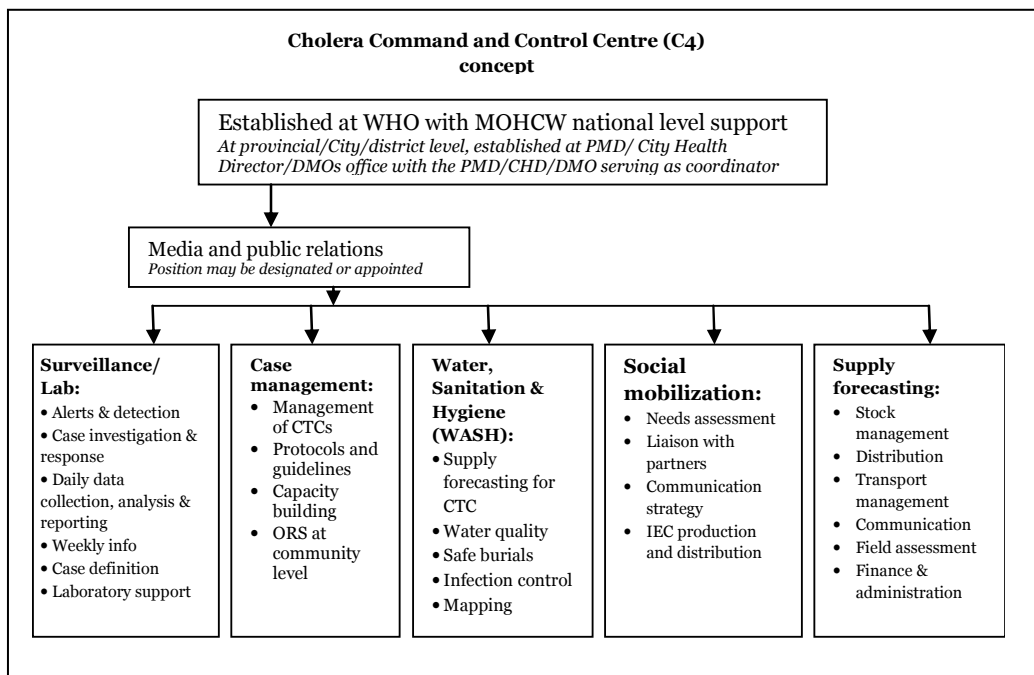


Appropriate control measures should be instituted based on findings. Control measures should not be delayed pending lab results.

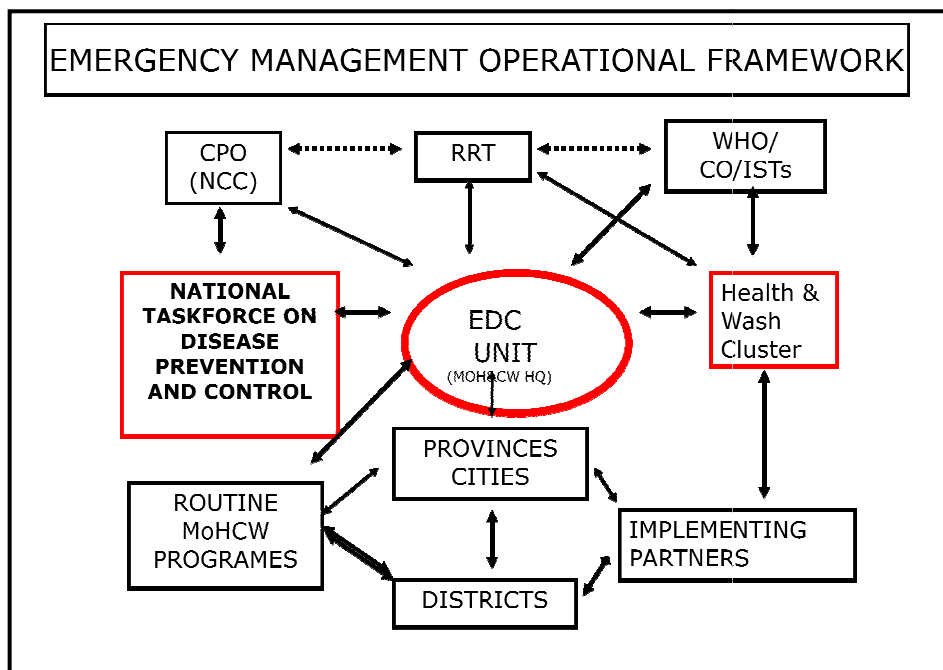
- Test all cases in the declining phase of the outbreak to determine the end of the outbreak, and keep all data.
- Follow guidelines on when to open and close treatment centres and units.

5. Coordination

MOHCW recommends that coordination of the response (through either the Epidemic Preparedness and Response Committee or its sub-committee at district level) is carried out using the (cholera command and control) C4 concept (see diagram below) where experts in thematic areas of epidemic management meet to better organise the response e.g. surveillance meet to find ways to improve reporting and data analysis. The basic activities within the five thematic areas may be adjusted as needed.



At operational level, the RRT is part of and reports to the Epidemic Preparedness and Response Committee, which in turn reports to the national taskforce on disease prevention and control (see the diagram below for more). The RRT will have links with WHO, health and WASH cluster members at district and even national level as this has been found to greatly improve epidemic response.



Note that the C4 structure is composed of WHO, MOHCW (Departments of Epidemiology and Disease Control & Environmental health), and the link between the two takes this into account.

Annex 1: Requirements for investigations and initial response

Laboratory supplies <ul style="list-style-type: none"> • Cary blair medium • Stool culture bottles & alkaline peptone water • Rapid Diagnostic Test kits • 100 rectal swabs • 500g Cary-Blair medium • 3 x 500g TCBS medium • 25g sodium desoxycholate • Sensitivity Discs: Ampicillin, Ciprofloxacin, Doxycycline, Chloramphenicol, Cotrimoxazole, Furazolidone, Tetracycline and Erythromycin. • 500g Mueller – Hinton Agar • 500g Kligler Iron Agar • 500g Lysine Iron Agar • 5 x 2ml polyvalent O group 1 cholera antiserum. • 1Kg APW • 500 Petri dishes (90mm) • 1000 test tube (13 x 100mm) • 1000 disposable Bijou bottles • 100 Oxidase strip Reagent • 100 slides 	
Clinical supplies* <ol style="list-style-type: none"> 1. ORS 2. IV fluids 3. Giving sets and cannulae 4. Antibiotics for severe cases <p>* Procure a cholera kit in the pre-outbreak phase to allow for treating additional patients</p>	Forms <ol style="list-style-type: none"> 1. Investigation tool 2. Laboratory request form 3. Report form 4. Line lists
Environmental health/infection control <ol style="list-style-type: none"> 1. Disinfectants (e.g. HTH, sodium hypochlorite and disinfectants guidelines) 2. Body bags 3. Hand disinfectant/sanitiser 4. Spray pumps Logistics: fuel; lighting; allowances; Cooking facilities 5. Transport 6. Lovibond comparators 	Reference materials <ol style="list-style-type: none"> 1. Cholera control guidelines 2. Summary on epidemic preparedness & response activities and the role of RRTs 3. Standard clinical & community case definition 4. Action and alert thresholds for priority diseases 5. Flow chart on identification of cholera cases 6. CTC patient admission & follow up form 7. Guidance on breastfeeding in CTCs Management of dehydration & monitoring IV infusions 8. Guidance on management of a severely malnourished patient 9. Funeral guidelines 10. Laboratory procedures for identification of <i>vibrio cholerae</i> 11. Guidelines on preparation of footbaths 12. Self evaluation of outbreak management <p>Or the compendium of health rapid response materials</p>
PPEs <ol style="list-style-type: none"> 1. Gloves 2. Gum boots 3. Face masks 4. Plastic Aprons 5. Dust coats/Work suits 	

Annex 2: Roles and Responsibilities of RRT members

Team leader: - Epidemiology and Disease Control Officer or other representative as appointed by the PMD or DMO

- Presents available information
- Outlines investigation plans
- Assigns roles and responsibilities
- Oversees team member roles
- Communicates with media
- Communicates with other officials

Epidemiologist

- Verifies the existence of outbreak
- To coordinate the activities of the RRT related to the investigation and containment of suspected or confirmed outbreaks
- Identifies and coordinates control measures
- Institutes case management measures
- Supervises data collection and data analysis in order to give information on the evolution of the outbreak
- To liaise with all stakeholders involved in the investigation and response of the outbreak
- To collect all available information from the provincial (sub-national) focal points prior to the field mission and prepare the logistic of the mission in collaboration with the Team Leader;
- To alert all relevant national health authorities
- To notify the next level about the outbreak
- To coordinate all follow-up measures in collaboration with the Team Leader

Environmental Health Officer

- Conduct epidemiological field investigations
- Case follow up and contact tracing
- Environmental decontamination
- Provide community education about the outbreak
- Liaise with stakeholders involved in field investigation
- Enforcing the provisions of the Public Health Act, including premises inspections, food condemnations, arranging for water and food quality testing.
- Liaises with the Health Promotion Officer on provision of social mobilisation and community education
- Siting and setting up of CTC in consultation with other members
- Oversees preparation of chlorine solutions for disinfection

Health promotion officer

- Identifies, orients and trains community health workers about the outbreak
- Conducts rapid assessments to establish predisposing factors, risk behaviour, determinants and gaps
- Develops and distributes IEC materials based on findings
- Mobilises stakeholders to support health education
- Conducts health education sessions in both affected and unaffected areas to contain the outbreak
- Conducts community mobilisation and other public information activities

Clinician

- Educates on the case definitions and identification of cases
- Advises and gives leadership in managing patients
- Educates, implements, and supervises infection control measures
- Advises on area hospital bed capacity and medical capability
- Advises on collection of clinical specimens from cases/patients

Laboratory Scientist

- Perform laboratory diagnosis to help refine/confirm a case definition and confirm the outbreak
- Advise and assure proper specimen collection, transportation, and storage
- Assess area laboratory capability
- Develop a plan for sharing specimens with national or WHO laboratories

Communication Specialist (maybe the HPO or other appointed person)

- Coordinates and assists in communications with media, international community, and officials
- Develops the main messages for public education
- Liaison with community and other important stakeholders
- Liaises with the Health Promotion Officer to develop the main messages for public education

Expanded Team Roles

- Logistician/ Administrator / Operations Manager
- Manage supplies including the requirements of the RRTs
- Work with security officer
- Monitor finances and allowances for the field workers
- Arrange transportation
- Monitor communications

Interviewers

- Interview patients, potential cases, doctors
- Collect data, either in person or by phone

Infection Control Officer

- Oversees use and distribution of PPE, decontamination processes within wards, or treatment areas
- Advises health units on proper infection control
- Assists in layout of CTC/CTU, management of hand washing facilities, foot baths, etc in liaison with the EHO

Responsibilities of the DRRT

The district rapid response team will be responsible for:

- Investigation of rumours/outbreaks and other public health problems in their district
- Proposing appropriate strategies and measures for the rapid containment of the epidemics
- Carrying out initial disease control measures to contain the outbreak
- Preparing detailed investigation report and providing feedback to the DHE and the multi-sectoral disaster response team or the Civil Protection Committee
- Contributing to the post mortem evaluation of the outbreak response.

References:

Chawla, U., Kumar, A., Jain, D.C., Khare, S., Lal, S. (2008) *Checklist for Central Rapid Response Team for Disease Outbreak Investigation including Avian Influenza* Government of India National Institute of Communicable diseases Delhi

MOHCW and WHO (2010) *Revised Integrated Disease Surveillance and Response Technical Guidelines* Harare: WHO

MOHCW and WHO (2010) *Zimbabwe Cholera Control Guidelines 3rd edition* Harare: WHO

WHO (1993) *Guidelines for cholera control* Geneva: WHO

WHO (2004) *Cholera outbreak: Assessing the outbreak response and improving preparedness* Global Taskforce on Cholera control Geneva: WHO

WHO (2004) *First steps for managing an outbreak of acute diarrhoea* Geneva: WHO

WHO (2004) *Acute diarrhoeal diseases in complex emergencies: Critical steps Decision-making for preparedness and response* Geneva: WHO